HEWLETT-PACKARD COMPANY   PATENT APPLICATION
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400   ATTORNEY DOCKET NO. ___200400352-1___

                                    IN THE
                 UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):   Parthasarathy Ranganathan et al.   Confirmation No.: 9361

Application No.: 10/830,216   Examiner: Jean E. Lesperance

Filing Date: April 23, 2004   Group Art Unit: 2629

Title: OPTIMIZING LIFETIME OF A DISPLAY

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

                        TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on ___Feb. 20, 2008___.

☒ The fee for filing this Appeal Brief is $510.00 (37 CFR 41.20).

☐ No Additional Fee Required.

                    (complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

    ☐ 1st Month   ☐ 2nd Month   ☐ 3rd Month   ☐ 4th Month
       $120 $460 $1050 $1640

    ☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of __$ 510__ . At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

☒ A duplicate copy of this transmittal letter is enclosed.

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Rev 10/07(AplBrief)

Total number of pages: 23

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Attorney Docket No.: 200400352-1

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APPEAL BRIEF - PATENTS

Sir:

This is an Appeal Brief in connection with the decisions of the Examiner in a Final

Office Action dated November 21, 2007. Each of the topics required in an Appeal Brief and

a Table of Contents are presented herewith and labeled appropriately.

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(1)   **Real Party In Interest**

The real party in interest is Hewlett-Packard Development Company, L.P.

(2)   **Related Appeals And Interferences**

There are no other appeals or interferences related to this case.

(3)   **Status Of Claims**

Claim 5 has been canceled. Claims 1-4 and 6-35 are pending and rejected. All

pending claims 1-4 and 6-35 are hereby appealed.

(4)   **Status of Amendments**

No amendment was filed subsequent to the Final Office Action dated November 21,

2007.

(5)   **Summary Of Claimed Subject Matter**

For simplicity in identifying supports for the claimed subject matter, references are

made to U.S. Patent Application Publication No. 20050237319, which corresponds to the

present application, and paragraphs numbered therein. Also, it should be understood that the

citations below are merely exemplary and do not limit the claimed features to only those

citations.

According to an embodiment in claim 1, there is provided a method of optimizing

lifetime of a display, the method comprising:

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determining whether to control at least a portion of a display based on a lifetime

metric (parag. [0040]; FIG. 5, at 502);

identifying a plurality of display control options in response to determining to control

the at least a portion of the display (parag. [0041]; FIG. 5, at 503); and

selecting at least one of the display control options to control the display (parag.

[0045]; FIG. 5, at 507);

wherein determining whether to control the display based on a lifetime metric

comprises:

a) comparing the lifetime metric to a threshold (parag. [0043]; FIG. 5, at 505);

and

b) determining to perform the step of identifying a plurality of display control

options in response to the lifetime metric exceeding the threshold (parags. [0041] and

[0043]; FIG. 5, at 503 and 505).

According to another embodiment in claim 10, which depends on claim 1, wherein:

selecting at least one of the plurality of display control options comprises:

evaluating the plurality of display control options (parag.

[0043]; FIG. 5, at 505); and

selecting the at least one of the plurality of display options

based on the evaluation (parag. [0045]; FIG. 5, at 507); and

evaluating the plurality of display control options comprises:

evaluating lifetime metrics and non-lifetime metrics for each of

the plurality of display control options (parag. [0043]; FIG. 5, at 505);

and

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ranking the plurality of display control options based on the

evaluation (parag. [0045]; FIG. 5, at 506).

According to another embodiment in claim 20, there is provided a method

comprising:

determining a lifetime metric for at least a portion of a display being used using a

lifetime model (parag. [0039]; FIG. 5, at 501);

determining whether to control the at least a portion of the display based on the

lifetime metric (parag. [0040]; FIG. 5, at 502); and

identifying at least one display control option using a usage model in response to

determining to control the at least a portion of the display (parag. [0041]; FIG. 5, at 503).

According to another embodiment in claim 26, there is provided an apparatus

comprising:

means for displaying information, the means for displaying is being used to display

information (parag. [0016]; FIGs. 1 and 6, at 20);

means for determining a lifetime metric associated with at least a portion of the means

for displaying (parag. [0039]; FIG. 1, at 120);

means for determining whether to control the at least a portion of the means for

displaying based on the lifetime metric (parag. [0040]; FIG. 5, at 502); and

means for identifying a plurality of display control options operable to increase a

remaining life of at least a portion of the display in response to determining to control the at

least a portion of the means for displaying (parag. [0041]; FIG. 5, at 503).

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According to an embodiment in claim 31, there is provided a computer software embedded on a computer readable medium, the computer software comprising instructions of:

determining whether to control at least a portion of a display being used based on a lifetime metric (parag. [0040]; FIG. 5, at 502);

identifying a plurality of display control options in response to determining to control the at least a portion of the display (parag. [0041]; FIG. 5, at 503); and

selecting at least one of the display control options to control the display (parag. [0045]; FIG. 5, at 507).

According to an embodiment in claim 35, there is provided a computer system comprising:

a display in use and operable to display a visual representation of information on the display (parag. [0016]; FIGs. 1 and 6, at 20);

a processor operable to determine a plurality of control options for increasing the remaining life of the display, each control option including parameters varying the visual representation of information on the display (parag. [0048]; FIG. 6, at 626); and

a display controller operable to receive parameters for one of the control options identified by the processor to control the visual representation of information on the display (parag. [0048]; FIG. 6, at 622).

(6)   **Grounds of Rejection to be Reviewed on Appeal**

Whether claims 1-4 and 6-35 are properly rejected as being anticipated under 35 U.S.C. § 102(e) by Dedene et al. (USPN 7,176,861).

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(7)   Arguments

A.   The rejection of claims 1-4 and 6-35 under 35 U.S.C. § 102(e) as being
anticipated by Dedene et al. should be reversed

Dedene et al. fails to show each and every element arranged as in independent claims
1, 20, 26, 31, and 35 and dependent claim 10. For example, Dedene et al. fails to show the
comparison of a proper lifetime metric to a threshold and the controlling of a lifetime of an
existing display (that is, a display that is being used and not a display that is being designed
provide a better lifetime for such a display *to be constructed*). Thus, Dedene et al. cannot be
used to anticipate claims 1-4 and 6-35, and the application is allowable.

The test for determining if a reference anticipates a claim, for purposes of a rejection
under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed
combination, or the mechanical equivalents thereof functioning in substantially the same way
to produce substantially the same results. As noted by the Court of Appeals for the Federal
Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221
USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection
under 35 U.S.C. § 102, the Court stated:

> Anticipation requires the presence in a single prior art reference
> disclosure of each and every element of the claimed invention,
> arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the
claimed invention, then the cited reference fails to anticipate the claimed invention and, thus,
the claimed invention is distinguishable over the cited reference.

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Independent claim 1

    Claim 1 recites, *inter alia*, a lifetime metric of a display, and "comparing the lifetime metric to a threshold."

    In the Final Office Action, page 4, the Examiner cited to the Abstract and column 12, lines 32-36, of Dedene et al. to allege that the lifetime of each sub-pixel (based on the size of such a sub-pixel) in the complete pixel discussed therein anticipates the claimed lifetime metric. Yet, on the same page of the Final Office Action and in the Response to Arguments section on page 2, the Examiner cited to column 9, lines 38-46, of Dedene et al. and alleged that the JND ("Just Noticeable Difference") threshold discussed therein anticipates the claimed threshold for "comparing the lifetime metric to a threshold."

    As clearly stated in Dedene et al., column 9, lines 38-46, the JND threshold is used to gauge the color differences or color shifts between colors of sub-pixels in a complete pixel of a display. While *a color difference or color shift* between sub-pixels is affected by the lifetime (or corresponding size) of each sub-pixel, it is not the lifetime (or corresponding size) of each sub-pixel, which is alleged to be the claimed "lifetime metric," that is being compared against the JND threshold. Rather, it is *that* color difference between the sub-pixels that is being compared against the JND threshold. In other words, even assuming that, as alleged by the Examiner, the lifetime (or size) of each sub-pixel reads on the claimed lifetime metric, there is no comparison of such a "lifetime metric" with a threshold such as the JND threshold in Dedene et al.

    Accordingly, Dedene et al. fails to anticipate claim 1 and its dependent claims because it fails to disclose each and every element as claimed. Therefore, the rejection of

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claims 1-4 and 6-20 should be reversed, and allowance of these claims is respectfully

requested.

Dependent Claim 10

Claim 10 further recites "evaluating *lifetime metrics* and *non-lifetime metrics* for each

of the plurality of display control options." (Emphasis added). As in a previous Office

Action dated June 8, 2007, the Final Office Action cited to FIG. 10, element 106 in Dedene et

al. to reject both lifetime and non-lifetime metrics as claimed. However, as previously stated

in the Amendment filed on September 10, 2007, element 106 refers to a step for calculating a

brightness for each sub-pixel. At best, such a brightness calculation represents a non-lifetime

metric. Thus, it cannot represent *both* lifetime and non-lifetime metrics. Yet, the Final

Office merely repeated the same rejection language found in the previous Office Action

without providing any response to the aforementioned arguments.

Accordingly, it is respectfully submitted that Dedene et al. does not anticipate claim

10, and it is further allowable over Dedene et al. and the references of records.

Independent Claims 20, 26, 31, and 35

Claims 20 and 31 recite, *inter alia*, "a display *being used*." Claim 26 recites, *inter

alia*, "the means for displaying *is being used* to display information." Claim 35 also recites

"a display *in use*." Thus, independent claims 20, 26, 31, and 35 are directed to extending the

lifetime of an already existing display in use. In contrast, the methods as described in FIGs.

8-13 of Dedene et al. are directed to *designing* a display with extended lifetime so that such a

display can be constructed according to the design. That is, the display does not even exist at

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the display designing stage in Dedene et al., on which the rejection of claims 20, 26, 31, and

35 was based. This is evidence in Dedene et al. at least at col. 16, lines 16-18. Thus, such

methods are directed to steps performed prior to the existence or construction of such a

display, as opposed to methods for extending the lifetime of an already-constructed display

subsequent to the manufacturing or constructions of such a display.

Again, the Final Office Action merely repeated the same rejection language found in

the previous Office Action without any response to the aforementioned arguments.

Accordingly, it is respectfully submitted that the rejection of claims 20-35 should be reversed

because Dedene et al. fails to anticipate claims 20, 26, 31, and 35 and their respective

dependent claims. Allowance of claims 20-35 is respectfully requested.

(8)   **Conclusion**

For at least the reasons given above, the rejections of claims 1-6 and 8-28 are improper.

Accordingly, it is respectfully requested that such rejections by the Examiner be reversed and

these claims be allowed. Attached below for the Board's convenience is an Appendix of claims

1-6 and 8-28 as currently pending.

Please grant any required extensions of time and charge any fees due in connection

with this Appeal Brief to deposit account no. 08-2025.

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Respectfully submitted,

Dated: March 6, 2008   By
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(9)   Claim Appendix

1. (Previously Presented) A method of optimizing lifetime of a display, the method comprising:

determining whether to control at least a portion of a display based on a lifetime metric;

identifying a plurality of display control options in response to determining to control the at least a portion of the display; and

selecting at least one of the display control options to control the display;

wherein determining whether to control the display based on a lifetime metric comprises:

a) comparing the lifetime metric to a threshold; and

b) determining to perform the step of identifying a plurality of display control options in response to the lifetime metric exceeding the threshold.

2. (Original) The method of claim 1, further comprising:

implementing the selected display control option to increase a remaining life of the at least a portion of the display.

3. (Original) The method of claim 1, wherein identifying a plurality of display control options comprises:

identifying a plurality of display control options using a usage model.

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4. (Original) The method of claim 1, wherein selecting at least one of the display control options comprises:

    selecting at least one of the display control options using at least one of the usage model and a lifetime model.

5. (Canceled).

6. (Original) The method of claim 1, wherein selecting at least one of the plurality of display control options comprises:

    evaluating the plurality of display control options; and

    selecting the at least one of the plurality of display options based on the evaluation.

7. (Original) The method of claim 6, wherein evaluating the plurality of display control options comprises:

    identifying a constraint on implementing any one of the plurality of display control options.

8. (Original) The method of claim 7, wherein the constraint comprises a user acceptance setting.

9. (Original) The method of claim 6, wherein evaluating the plurality of display control options comprises:

    determining a lifetime savings for each of the plurality of the display control options.

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10. (Original) The method of claim 6, wherein evaluating the plurality of display control

options comprises:

    evaluating lifetime metrics and non-lifetime metrics for each of the plurality of

display control options; and

    ranking the plurality of display control options based on the evaluation.

11. (Original) The method of claim 10, wherein evaluating lifetime metrics and non-lifetime

metrics for each of the plurality of display control options comprises:

    using at least one of a lifetime model and a usage model to evaluate lifetime metrics

and non-lifetime metrics for each of the plurality of display control options.

12. (Original) The method of claim 1, wherein determining a lifetime metric for at least a

portion of the display comprises:

    determining at least one of past use and predicted future use of the at least a portion of

the display.

13. (Original) The method of claim 1, wherein determining a lifetime metric for at least a

portion of the display comprises:

    using a lifetime model to determine the lifetime metric, wherein the lifetime model

includes an estimation of the lifetime of the at least a portion of the display.

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14. (Original) The method of claim 13, wherein the lifetime model comprises a display

degradation curve or another similar estimation of remaining lifetime of the display based on

past use of the display.

15. (Original) The method of claim 13, wherein using a lifetime model to determine the

lifetime metric comprises:

      measuring use of the at least a portion of the display; and

      applying the measured use to the lifetime model to determine the lifetime metric.

16. (Original) The method of claim 13, wherein using a lifetime model to determine the

lifetime metric comprises:

      estimating the lifetime costs of applications typically executed on a computer system

including the display;

      determining properties of screen usage for the display, the display displaying

information from the applications;

      estimating the use of the at least a portion of the display based on the estimated

lifetime costs and determined properties; and

      applying the estimated use to the lifetime model to determine the lifetime metric.

17. (Original) The method of claim 1, wherein identifying a plurality of display control

options comprises:

      analyzing usage of at least one of the display and one or more displays similar to the

display;

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determining usage patterns from analyzing the usage; and

analyzing the usage patterns to determine the plurality of display control options.

18. (Original) The method of claim 1, wherein the at least a portion of the display comprises at least one of a sub-pixel, a pixel, and a group of pixels in the display.

19. (Original) The method of claim 1, wherein the plurality of display control options comprise parameters for displaying information on the at least a portion of the display.

20. (Previously Presented) A method comprising:

determining a lifetime metric for at least a portion of a display being used using a lifetime model;

determining whether to control the at least a portion of the display based on the lifetime metric; and

identifying at least one display control option using a usage model in response to determining to control the at least a portion of the display.

21. (Original) The method of claim 20, further comprising:

implementing the at least one display control option to increase the remaining life of the at least a portion of the display.

22. (Original) The method of claim 20, wherein the lifetime model includes an estimation of the lifetime of the at least a portion of the display.

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23. (Original) The method of claim 20, further comprising:

profiling use of at least one of the display and one or more displays similar to the display to establish the usage model.

24. (Original) The method of claim 23, wherein profiling comprises:

profiling use by a current user of the display.

25. (Original) The method of claim 23, wherein profiling comprises:

analyzing past use of at least one of the display and the one or more similar displays by a plurality of users.

26. (Previously Presented) An apparatus comprising:

means for displaying information, the means for displaying is being used to display information;

means for determining a lifetime metric associated with at least a portion of the means for displaying;

means for determining whether to control the at least a portion of the means for displaying based on the lifetime metric; and

means for identifying a plurality of display control options operable to increase a remaining life of at least a portion of the display in response to determining to control the at least a portion of the means for displaying.

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27. (Original) The apparatus of claim 26, further comprising:

    lifetime model means for estimating a life of the means for displaying.

28. (Original) The apparatus of claim 26, further comprising:

    usage model means for estimating usage of the means for displaying.

29. (Original) The apparatus of claim 27, further comprising:

    means for evaluating the plurality of display control options using at least one of the

lifetime model means and the usage model means; and

    means for selecting at least one of the plurality of display control options based on the

evaluation.

30. (Original) The apparatus of claim 29, further comprising:

    means for implementing a selected one of the plurality of display control options.

31. (Previously Presented) Computer software embedded on a computer readable medium,

the computer software comprising instructions of:

    determining whether to control at least a portion of a display being used based on a

lifetime metric;

    identifying a plurality of display control options in response to determining to control

the at least a portion of the display; and

    selecting at least one of the display control options to control the display.

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32. (Original) The computer software of claim 31, further comprising instructions of:

    implementing the selected display control option to increase a remaining life of the at least a portion of the display.

33. (Original) The computer software of claim 31, wherein the instructions of identifying a plurality of display control options comprises instructions of:

    identifying a plurality of display control options using a usage model.

34. (Original) The computer software of claim 33, wherein the instructions of selecting at least one of the display control options comprises instructions of:

    selecting at least one of the display control options using at least one of the usage model and a lifetime model.

35. (Previously Presented) A computer system comprising:

    a display in use and operable to display a visual representation of information on the display;

    a processor operable to determine a plurality of control options for increasing the remaining life of the display, each control option including parameters varying the visual representation of information on the display; and

    a display controller operable to receive parameters for one of the control options identified by the processor to control the visual representation of information on the display.

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(10)   **Evidence Appendix**

None.

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(11)   **Related Proceedings Appendix**

None.

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